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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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Abstract

Operational deception in the littorals remains an imperative for an operational commander, but its techniques and means must evolve to address the current and future operating environments by adopting new technologies, adapting existing methods, and developing wide-ranging training opportunities. This paper reviews definitions of operational deception and the littorals and applies the principles of military deception to a World War II case study. The paper then uses these definitions and principles to evaluate the current status of operational deception in the U.S. military. It argues that operational deception is both necessary and achievable in the current littoral environment. After detailing potential options for deception means, the paper concludes with specific recommendations in regards to training and equipping the future force.

No major operations should be undertaken without planning and executing appropriate deception measures. As time goes on . . . there is danger that . . . means may in the future not be considered in our planning.

- General Dwight D. Eisenhower Army Chief of Staff, 1947

Dead men tell no tales but . . . they can sell a pretty good story. The familiar account of the "man who never was" provides a romantic view of operational deception. In preparation for Operation HUSKY, the landing on Sicily in World War II, Allied planners dropped a homeless man's corpse bearing the uniform and documents of one Major Martin. His false plans indicated the Allies' impending invasion would take place in the Balkans vice Italy. This ruse influenced the defensive designs of top German officers, thereby allowing the Allies to achieve their operational objective of seizing a lodgment in the littoral region of Italy. Unfortunately, the methods the Allies used, while sufficient for their age, would be overwhelmingly obsolete in today's technologically advanced world.

Operational deception in the littorals remains an imperative for an operational commander, but its techniques and means must evolve to address the current and future operating environments by adopting new technologies, adapting existing methods, and developing wide-ranging training opportunities. To understand how operational deception methods and means can succeed in the future littoral operating environment, it is helpful to define operational deception, describe the uniqueness of the littoral environment, and demonstrate the utility of operational deception in the littorals.

Operational Deception Definitions, Types, and Methods/Techniques

While the term operational deception conjures up images of James Bond and Jason Bourne, its actual definition and methods are much more mundane. According to U.S. doctrinal publication *Military Deception*, operational military deception (MILDEC) "seeks to

influence adversary operational level decision makers' ability to successfully conduct military operations. The objective of operational MILDEC is to undermine adversary operational commanders' ability to make decision and conduct campaigns and major operations. Operational MILDEC influences the decisions of adversary commanders before, during, and after battle so the tactical outcome can be exploited at the operational level." At the operational level of war, deception requires a commander to employ joint means over a large period of time and space. Operational level deception is targeted at the opposing commander to influence him not just to think something but also to do something. As Michael Handel, a prolific author on the use of deception states, "deception per se has no value; it assumes significance only when used as a means of achieving surprise."

Operational deception can be divided into two types: "M-type" or misleading variety and "A-type" or ambiguity producing. ⁴ The M-type seeks to mislead an opponent into believing a particular deception plan by using ruses, displays, demonstrations, and feints. The vignette opening this paper, which describes the deception plan used in preparation for the landing at Sicily, provides an excellent example of M-type deception. A-type deception seeks to create confusion and distract the enemy by making "noise". An example of A-type deception is Hitler's diplomatic cultivation of Russian leaders while he simultaneously planned Operation BARBAROSSA, the invasion of the Soviet Union. Receiving multiple intelligence inputs, the Soviets were deceived as to what the Germans' real intentions were and ultimately unprepared for the onslaught that ensued.

Methods of operational deception include a broad range of activities such as camouflage, conditioning, and cover. Eric Shaw of the Naval War College summarized the various methods: "distilled to their basic categories, there are only four techniques employed

in deception. These are feints, demonstrations, ruses, and displays." Widely accepted definitions of these terms can be found in *Joint Publication 3-13.4 Military Deception*. ⁶ Whatever the definitions, types, and methods/techniques one subscribes to, the use of deception is timeless. Sun Tzu observed over 2600 years ago "all warfare is based on deception." While all warfare may be based on deception, deception is especially important in the complex operating environment of the littoral region.

Littorals as a Complex Operating Environment

The littoral operating environment is first among equals when examined in terms of complexity. It is complex, mixing land, air, sea, and subsurface environments, which requires an operational commander to pay particular attention to the operational factor of space. In *Proceedings*, an author noted, "Naval history is replete with tales of victory by great fleets on the high seas. But it is also punctuated by the stunning defeats of many of these same fleets in their adversaries' coast waters, or littorals." The littorals are unique in several key areas: the physical environment that allows multiple means of engagement, the challenge of gaining sea control, and the increasing risk of conflict in the regions.

The littoral region's physical environment is daunting and multifarious. The tight confluence of sea and land allows for a sophisticated, combined naval ground defense that surpasses any complex defense that may be organized in traditional land or sea battles.⁸ Gaining and maintaining sea control is exponentially more difficult in the littorals as evidenced by the conventional conflict in the Falklands in 1982 and asymmetric fight between Israel and Hezbollah in 2006.⁹

Coupled with this complexity and the challenge of sea control is the increasing potential of future operations in the littorals. As Milan Vego, scholar and historian of operational art, summarized, "In the future, most combat at sea will take place close to

hostile littorals and their interior. The world's littorals have increased in political, economic, and military importance, because most of the world's population lives in proximity to them." Vego's prediction and similar ones to it have been included in recent doctrinal publications such as *Seapower 21* and *Marine Corps Concepts 2011*. Each of these publications outlines the need to prepare for future conflict in the littorals and has wrestled with gaining and maintaining sea control in the littoral region of the future-operating environment.

Modern militaries are faced with a quandary: conflicts of the future will most likely occur in the littoral region, but the littoral region is the most difficult and complex region in which to wage conflict. The unique aspects of the littoral region make offensive actions seem unachievable. However, successful operational deception can help mitigate the challenges presented by the littoral region as evidenced by World War II operations.

Mini Case Study: Operation HUSKY

While multiple examples of operational deception exist from antiquity until the present, one World War II example highlights the effectiveness and utility of using operation deception techniques such as ruses, feints, displays, and demonstrations when conducting operations in the littorals. Operation HUSKY provides an effective example of using deception to achieve a desired effect. The six principles of military deception from JP 3-13.4 *Military Deception* provide a lens for examining the case study. The six principles of military deception are focus, objective, centralized control, security, timeliness, and integration, and each principle is evident in the case study. ¹¹

The Allied invasion of Sicily, codenamed Operation HUSKY, was supported by multiple deception plans including Operation BARCLAY and Operation MINCEMEAT.

The focus of the deception plan was to influence Hitler and Rommel's decision-making

processes, specifically their positioning of forces in the Mediterranean region. The objective was to induce the Germans and Italians to maintain their forces in the Balkans and Southern France, thereby reducing their ability to reinforce Sicily. Operational planners on Eisenhower's British staff stationed in Cairo facilitated centralized control by crafting the deception plan and tightly controlling information. Tactical commanders were largely unaware of the role they were playing. The operational deception plan spanned several months with each action having a nested objective. Early in the planning the Allies used displays and ruses to encourage the Germans and Italians to divide their forces. As D-Day approached, the Allies conducted a series of feints to disguise their actual landing location. The movements of air, ground, and naval forces were coordinated at the operational level to deceive the enemy.

Operation HUSKY involved a display of convoy movements to Malta and feints towards secondary targets such as Corsica. It relied heavily on Signals Intelligence (SIGINT) to both feed information to the Axis powers and provide a feedback loop to track success. The end result was an Allied victory at an acceptable cost. Operation HUSKY contained all elements of a successful operational deception plan using ruses, displays, feints, and demonstrations to deceive the enemy and achieve their operational objective both effectively and efficiently.

As the previous example shows, operational deception played a key role in Allied successes in the littorals during World War II. It helped achieve victory at an economical cost both in terms of lives and material. In his 2004 book, *The Deceivers*, Thaddeus Holt glorifies the various means the Allies used to achieve their ruses, displays, demonstrations, and feints. He outlines a multitude of means including sonic and visual deception, manipulative and

imitative radio techniques, radar manipulation, and even the use of the media to gain advantage. Operational deception was achievable and a necessary planning requisite for operational success in the littorals during World War II, a requisite that some argue is no longer required in the current operating environment. To truly understand, however, how deception means and methods can be re-envisioned to be valuable in the future, it is helpful to look first at the argument of those who think that operational deception is irrelevant and obsolete.

Counter Argument: Operational Deception Methods Used in the Littorals Are Obsolete and Irrelevant

The achievement of planners using deception during World War II is noteworthy.

Some would argue, however, that it is also irrelevant in today's operating environment. Use of operational deception in the current operating environment is neither necessary nor achievable. Changes to the operating environment preclude the need for and make the means to accomplish deception in the littorals obsolete.

The U.S. military of the 1940s had multiple peer competitors. The current environment recognizes the U.S. as the world's lone superpower with near peer competitors lagging far behind. U.S. military might, industrial capacity, and economic resources enable it to project power throughout the world; operational deception is neither required nor necessary.

The rapid rate of technological innovation has rendered World War II era deception means unfeasible. Advances in computer technology, Intelligence Surveillance, and Reconnaissance (ISR), anti-access/area denial (A2D2), as well as the advent of the omniscient 24-hour news cycle have made operational deception unachievable and therefore obsolete. *Joint Vision 2020* validates these changes in the environment and their implications stating "increased availability of commercial satellites, digital communications, and the

public internet all give adversaries new capabilities a relatively low cost."¹⁵ The clarity of satellite images makes the use of simple displays such as rubber tanks and fake landing craft obsolete, let alone the implementation of wide-ranging, complex deception plans executed in Operation HUSKY. Information derived from Synthetic Aperture Radar (SAR), Multi-Spectral Imagery (MSI), and electro-optical images (EO) makes concealing forces virtually impossible.

In addition to this increased transparency in the littorals, the lethality of the region has also increased. In a report for the Center for Strategic and Budgetary Assessments, Andrew Krepinvich details how "prospective adversaries are developing and fielding, or have ready access to, military capabilities that will place US forces . . .in the littoral regions at increasing risk." ¹⁶ The effective use of A2AD is predicated on the exponential increase in sensing and observation technology such as satellites, phased array radars, and seabed based sensors. Today's littoral operating environment leaves nowhere to hide and no means to deceive. Operational deception has its time and place, and that time and place is in the past.

Operational Deception Methods Used in the Littorals Are Necessary

Opponents of operational deception in the littorals, who view it as no longer necessary in the current and future operating environment, cite America's seemingly overwhelming military strength as their main reason. Their assumptions and hubris are countered by facts.

Operational deception remains a necessary imperative for an operational commander.

Operational deception in the littorals is still necessary because it is effective, cost efficient, and our competitors are training for it.

Operational deception remains necessary because it is effective. According to an U.S. Army website citing statistics from a study on the effectiveness of operational deception, "In about 78 percent of all military encounters studied since 1914, tactical warning of attack was

present. If deception was successful, the enemy ignored the warning and was surprised by the attack." U.S. doctrinal publications cite military deception as "a critical contributor to achieving surprise, economy of force, mass, and security." Operational deception provides a competitive advantage. Once a commander has been victimized by false intelligence, he will question all future information, thereby slowing his decision cycle and sowing seeds of distrust into all of his plans. Operational deception is necessary because it works.

Operational deception is still necessary in the littorals because of the cost benefits it provides. Operation art dictates the judicious use of assets. Just because America has the means to overwhelm its adversaries doesn't mean that is the appropriate approach to take. The essence of operational art is to be both effective and efficient: "A 1989 Marine Corps study on deception noted 'the investment for a deception capability is often a small portion (seldom more than five percent) of the total resources committed to combat." While much has been written about the challenges and costs of sea control in the littoral regions of the future operating environment, operational deception provides a cost effective means to mitigate the risks. In addition to the monetary and material advantages of using deception, it saves lives. In his book, *Strategem: Deception and Surprise in War*, Barton Whaley cites significant lower friendly causality rates when deception is used.²⁰

The final reason why the use of operational deception in the littorals remains an imperative for an operational commander is because his potential adversaries are planning for it. Near peer competitors such as China and asymmetric adversaries including Hezbollah are preparing for and in some cases have used operational deception in the modern operating environment.²¹ To ignore the implication of their efforts would put the U.S. at a competitive disadvantage. Potential foes have demonstrated that operational deception is alive and well in

the current operating environment, and our operational commanders must take notice and incorporate it into their planning regimens.

Operational Deception in the Littorals is Achievable

Opponents of operational deception cite that it is no longer necessary or achievable in the current operating environment. Their arguments bring to mind the classic business book of the early 1990s, *Who Moved My Cheese*. The book *Who Moved My Cheese* describes different types of responses to change: those who fail to recognize it and rail against it and those who identify it, embrace it, and adapt to it. Naysayers who describe operational deception in the littorals as obsolete fall into the first category. Their failure to recognize the new opportunities that current technology presents renders their own thinking obsolete. Operational deception is neither simple nor overly complex, but it requires dedicated, creative thinking and should be re-envisioned to use different means. While many of the techniques and means of operational deception that were so successful during World War II have changed, their fundamental methods and purpose has not. Operational deception is achievable in the modern littoral environment if new technologies are adopted, existing methods are adapted, and new doctrine and training opportunities are developed.

Advances in technology present new and novel ways to influence and deceive an enemy commander's thinking. According to an article about operational deception in the Information Age, "new information technologies offer both sides more, not fewer opportunities for deception." Those citing operational deception's obsolescence note the proliferation of ISR, sensors, and satellite images as an impediment. A counter argument holds that the greater the number of intelligence means an adversary has, the more opportunities to provide them M-type misinformation or to overwhelm them with A-type noise. The venues for transmitting false information are seemingly endless given the

widespread use of the electromagnetic spectrum including cell phones, radio, television, and email. Advances in technology also give the operational commanders the ability to use resources outside the joint operating area to influence and shape the battlefield. The environment is ripe for manipulation. It should be noted that deception is targeted at the enemy commander's thought process, not his intelligence collection assets, and although the means to influence his collection assets may change, the ultimate effect of shaping his thinking will not. There are many ways to use current and future technologies to deceive potential adversaries in the littorals.

M-type and A-types of deception provide an excellent framework for imagining how capitalizing on advances in technology can support operational deception in the littorals. Examples of using advances in technology to produce A-type or ambiguity producing effects include using computers to overwhelm networks, create false traffic, and blur the enemy's operational picture. The ability of computers to generate vast amounts of data will allow the operational commander to inundate the enemy's collection network. "Deception can," according to Milan Vego, "introduce noise into the collection and analysis of intelligence and weaken the clarity of signals." ²³ Just as the Allies false emitters overwhelmed Italian collection networks during Operation HUSKY, injects into the maritime domain's Automated Information System (AIS) or other real time ship tracking software can whiteout the adversary's operational picture. ²⁴ Seabed sensors can be manipulated to either overwhelm or create false positives (decoys). ²⁵ Savvy commanders could influence sensors during operations in the littorals by creating a series of false positives or by series of denials of the sensor network. Counter to operational deception opponents who say advances in technology

will create a transparent battlefield, innovations in technology can be used to increase the fog.

Advances in technology can also be used to mislead the enemy in M-type deception operations. Examples of using misleading or M-type deceptions include the use of electronic camouflage to hide what is displayed and using digital injects to create or elaborate on a false demonstration. Advances in stealth technology can camouflage what is displayed or what is hidden from our adversaries. Digital injects can simulate a false order of battle or disguise units actual locations. Several hundred years ago the invention of gunpowder caused a revolution in military affairs at the tactical level. The advent of new technologies is not a harbinger of deception's death but rather can and should create a revolution in operational deception in the littorals at the operational level.

Operational deception is achievable in the modern littoral environment if existing methods are adapted. Shaw's four distinct categories of deception techniques, ruses, displays, demonstrations, and feints that were so evident in Operation HUSKY are not obsolete but can adapted for the future fight in the littorals. Each of the techniques relies on the fundamental truism of operational deception: a human decision maker is the target of the deception. In his book *The Deceivers*, Holt summarizes this idea saying, "The enemy commander is the deceiver's target, but he is not the deceiver's customer. The customer is the enemy intelligence service, who must gather and process information and present it to their commander." At the heart of operational deception, the planners are still deceiving a person, not a process. A review of each technique provides insight into its utility in the future operating environment.

A display is used to deceive or condition an enemy's visual observation. Displays have worked since Gideon blew his trumpets and lit his fires over 3000 years ago. U.S. and British forces put displays to great use with their rubber tanks and cardboard airplanes during World War Two. False displays are still a viable method in the current era, even with its seemingly omnipresent ISR capabilities, but the means to accomplish it must change. The key is to present what the enemy wants to see and feed into his preconceived notions. As noted earlier, technology can be used to manipulate sensors and create false digital displays. The central idea is to manipulate the information to fit the enemy's preconceived notions.

The significance of displays can be magnified and leveraged through the recent explosion of multimedia. An operational commander could seed elements of deception through a variety of venues (internet, radio, television) to influence the perceptions of his opposing commander as to the capabilities and intentions of his forces. This type of deception was evident during Gulf War I when Saddam Hussein relied upon CNN news reports for his intelligence updates.²⁷ The coalition's display of amphibious prowess was sensationalized by the international news media, feeding into Hussein's notion of where potential attacks might occur and thereby influencing his force dispositions.

Military forces can perform routine activities to condition the enemy into accepting a pattern of activities. Prior to the Arab-Israeli War of 1973, the Egyptians conditioned the Israelis by staging multiple training exercises in the region creating a "cry wolf" scenario where the Israelis became complacent with the frequency of the exercises. ²⁸ Conducting multiple training exercises in a region is another example of conditioning to create a display that is still viable in the modern, sensor-rich era. US forces could condition the enemy's reliance on sensor networks by creating various denials of service to mislead him as to the

quality and consistency of the information he receives or shape his perceptions of the capabilities, force laydown, and intentions of forces. Ultimately, displays are still a viable method of deception, but the means should be adapted.

Demonstrations are also a viable method of operation deception in the current age. However, operational deception in the current environment may involve extensive use of forces to make this means of deception credible. Operational commanders may have to assemble and deploy significant numbers of forces to reinforce conceptions of a feint. This level of effort is not unprecedented.²⁹ One of the classic demonstrations of the twentieth century involving the significant use of forces was the use of the whole 5th Marine Expeditionary Brigade for a demonstration off the coast of Iraq to fix Iraqi forces during Gulf War I.

A more current example of a demonstration occurred during Operation ODYSEY DAWN in 2011. The news media and Colonel Gaddafi seemed to focus on the carrier strike group demonstration off the coast and paid little attention to the real strikes coming from land-based air in Europe. An operational commander could "show" or demonstrate to the media their obvious capabilities and "hide" real strike assets to gain operational surprise. Advances in technology and surveillance can be leveraged by the operational commander to accentuate the significance of a demonstration to the ever-present media and satellite imaging. The news media could be used to flood the adversary with a dizzying array of options against which to plan. A series of A-type demonstrations could create so much "noise" that it would be challenging for the enemy to focus their collection. Demonstration is still a viable method of operational deception in the modern era.

In addition to displays and demonstrations, ruses are also a credible means of deception in the current operating environment. The means have changed; today's operational commander can leverage internet and 24-hour news cycle, Facebook/open source as tools for injecting and reinforcing a ruse. A country would be hard pressed to try deceiving an opponent using a Major Martin like ruse given the prevalence of ISR and other sensors to confirm force details and dispositions. However, a modern version of the infamous Haversack Ruse exploited by the British during WWI when a courier "dropped" his haversack containing British war plans could be implemented using modern means to sow seeds of doubt in the enemy commander's decision cycle. The modern ruse could be the "loss" of a J-3/5's laptop in Hawaii, a "misplaced" thumb drive, or the posting of secret documents on an unsecure network. Ruses rely on feeding into an adversary's existing cognitive assumptions, a fact that has not changed with the advent of new technology. An adversary's assumptions can still be leveraged by using ruses, but the means of leveraging has changed. Ruses are still a viable deception method for the operational commander.

The final operational deception technique that is still achievable for today's operational commander is the use of a feint. As demonstrated during the second battle of Fallujah in 2004, feints still work even under the glare of modern media. Modern day feints in the Information Age may include a series of directed attacks on an adversary's computer network to condition them or render them complacent. For example, one could use a series of information disruptions to convince the opposing commander as to the fidelity of his information collection assets prior to the actual assault. Another possibility is to use a series of BotNets to facilitate overwhelming sensors in a particular avenue of approach in the littorals. As mentioned earlier, technology exists and can be refined to create the potential for

digitally simulated feints. Using the potential landing sites in France in World War II as an example, an operational commander could use technology to manipulate sensors and create the perception of an assault at the Pas de Calais while really attacking Normandy. Displays, demonstrations, ruses, and feints are still viable methods of operational deception, but their means must be adapted to be successful.

Current Status of Operational Deception: Conflicts and Training

Advances in technology and adaptation of existing methods will not succeed unless they are codified in doctrine, trained to in exercises, and implemented in conflicts.

Improvements in doctrine began to be codified in service publications such as the Army's Field Manual 90-2 and promulgated in Commander of the Joint Chiefs of Staff (CJCS) documents such as Joint Vision 2010 and have been updated as recently as January 2012 with the distribution of Joint Pub 3.14 Military Deception. However, the current status of operational deception leaves us wanting.

While examples of modern deception do exist, they appear to be more of the check in the block variety than the robust efforts of our WWII brethren. We have made advances in words but not in actions. Looking through the lens of the combatant commanders and service chiefs, minimal action has been taken to train for operational deception. The United States Marine Corps conducted its largest amphibious exercise in over ten years, and yet according to an observer from the Naval War College, operational deception was not included in the training. Similar observations have been reported from officers serving in the Pacific and European commands. Operational deception is an afterthought rather than an integral part of training.

Only a select few service members are able to attend Information Operations courses that deal with operational deception, and therefore their influence and ability to provide

subject matter expertise in joint planning groups and operational planning teams is minimal. "While there is no lack of ingenuity among U.S. service members (at any rank), there is little training in 'how to craft and employ ruses' and relatively few resources tasked to support deception operations," according to a RAND study. Operational deception is, as its name implies, an operational level action, and is best planned and organized by senior level staffs with the ability to use all of the joint capabilities at their disposal. Professor Shaw stated "a cardinal principle in deception is the need to maintain centralized control and coordination of one's own deception operations." It is also at the operational level that planners can incorporate both military and nonmilitary means. If deception personnel are not developed and deception is not trained to in peacetime, it may not be effective during wartime.

Operational deception is being promulgated but not practiced.

Our deception skills and willingness to use deception have atrophied since World War II. It has been used sparingly in a few recent conflicts. According to one researcher, "No operational deception plan was prepared for the Kosovo conflict in 1999, nor has one been evident for operations in Afghanistan." There is some evidence of operational deception being used during Operation IRAQI FREEDOM and Operation ODYSSEY DAWN. In each of these cases, it appears only rudimentary attention was paid to the use of operation deception. U.S. forces relied more upon the traditional American way of war, the use of superior firepower to overwhelm our enemies. In the operating environment of the future, this abdication of operational deception will no longer be efficient or sustainable.

The good news is that future initiatives bode well for the future of operational deception. In addition to the CJCS emphasis on revising deception doctrine, USSTRATCOM has also begun to develop tactics, techniques, and procedures, as well as other concepts

designed to integrate cyberspace capabilities.³⁵ SPAWAR is developing technology to assist initiatives in Maritime Domain Awareness that can assist in deception means.³⁶ These initiatives are to be lauded, but further actions need to be taken.

Recommendations for the Future

- Elevate Information Operations to an equal element of Joint Functions and maintain MILDEC as a key pillar of the new function to ensure its priority and use are reflected.
- Increase the pipeline of personnel attending Information Operations courses.
- Increase operational deception training in professional military education schools at the career-level and intermediate-level courses.
- Mandate operational-level deception be included in all combatant command exercises.
- Aggressively pursue new technologies that will facilitate operational deception.

Conclusion

Just as Mark Twain decried that the reports of his death were greatly exaggerated, the perceived obsolescence of operational deception is also premature. It is necessary and achievable. Operational deception in the littorals remains a necessary planning consideration for a commander, but how he prepares for it and implements it must change. As the eminent deception theorist Michael Handel noted, "In terms of its forms and the means employed, deception will, like war itself, change as new weapons and technologies appear." With operations in the littorals becoming more prevalent and their costs increasing, operational deception is a consideration a commander cannot afford to bypass. The United States must adopt new technologies and adapt its operational deception means if it will succeed in inevitable future engagements in the littorals.

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¹ Thaddeus Holt, *The Deceivers: Allied Military Deception in the Second World War* (New York: Scribner, 2004): 368.

² Chairman, U.S. Joint Chief of Staff, *Military Deception*, Joint Publication (JP) 3-13.4 (Washington, DC: CJCS, 26 January 2012): I-4.

³ Michael I. Handel, *Strategic and Operational Deception in the Second World War* (London: Frank Cass & Co. Ltd., 1987): 1-2.

⁴ Donald C. Daniel and Katherine L. Herbig, *Strategic Military Deception* (Oxford: Pergamon, 1982), 5-7.

⁵ Eric J. Shaw, "Military Deception at the Operational Level of War" (research paper, Newport, RI: U.S. Naval War College, Joint Military Operations Department, 2011), 6. ⁶ *Military Deception*, I-9.

⁷ Victor G. Addison and David Dominy, "Got Sea Control?," *Proceedings Magazine*, (March 2010): 285.

⁸ Yaneer Bar-Yam. "Complexity of Military Conflict: Multiscale Complex Systems Analysis of Littoral Warfare" (research paper for CNO Strategic Studies Group, New England Complex Systems Institute, 2003), http://necsi.edu/research/management/militray/ (accessed 17 April 2012).

⁹ David A. Acosta, "Hizballah: Deception in the 2006 Summer War." *IO Sphere: Professional Journal of Joint Information Operations*, 1 December 2008, http://www.au.af.mil/info-ops/iosphere.htm#08winter (accessed 7 April 2012).

¹⁰ Milan Vego, *Joint Operational Warfare: Theory and Practice* (Newport, RI: Naval War College Press, 2009), XIV-5.

¹¹ Military Deception, I-6.

¹² Vego, Joint Operational Warfare, VII-106.

¹³ John Patch, "Fortuitous Endeavor: Intelligence and Deception in Operation TORCH," *Naval College Review* 61, no. 4 (Autumn 2008): 93.

¹⁴ Holt, *The Deceivers*, 87-95.

¹⁵ Chairman, U.S. Joint Chiefs of Staff, *Joint Vision 2020*, (Washington, DC: CJCS, 2000): 4.

¹⁶ Andrew Krepinevich, Barry Watts, and Robert Work, *Meeting the Anti-Access and Area-Denial Challenge*, CSBA report (Washington, DC: Center for Strategic and Budgetary Assessments, 2003), I.

¹⁷ Cyberspace and Information Operations Study Center. "Battlefield Deception," accessed 17 April 2012, http://www.au.af.mil/au/awc/awc/awc/awc/atdecep.htm.

¹⁸ Military Deception, IV-14.

¹⁹ John LeHockey, *Strategic and Operational Military Deception: U.S. Marines and the Next Twenty Years.* Quantico, VA: Marine Corps Combat Development Command, 1989, 117, quoted in Francis X. Sheehan, "Operational Deception and Modern Warfare: The Use of Deception in the Information Age" (Research paper, Newport, RI: U.S. Naval War College, Joint Military Operations Department, 2007), 4.

²⁰ Barton Whaley, *Stratagem: Deception and Surprise in War* (Cambridge: Arctech House, 2007): 135.

²¹ Acosta, "Hizballah: Deception in the 2006 Summer War."

²² Milan Vego, "Operational Deception in the Information Age," *Joint Forces Quarterly* 30, (Spring 2002): 63.

²³ Ibid., 61.

²⁶ Holt, *The Deceivers*, 59.

³² Shaw, "Military Deception at the Operational Level of War", 7.

³³ Vego, "Operational Deception in the Information Age," 60.

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²⁴ Richard M. Crowell, "War in the Information Age: A Primer for Cyberspace Operations in 21st Century Warfare" (research paper, Newport, RI: Naval War College, Newport: Naval War College, January, 2010), 6.

²⁵ Scott Gerwehr and Russell Glen. *Unweaving the Web: Deception and Adaptation in Future* Urban Operations. RAND Report (Santa Monica, CA: RAND, September 2002) 60.

²⁷ Edwin J. Grohe, "Military Deception: Transparency in the Information Age" (research paper, Newport, RI: U.S. Naval War College, Joint Military Operations Department, 2007),

²⁸ Michael D. Webb, "Creating a New Reality: Information Age Effects on the Deception Process" (research paper, Maxwell, AL: U.S. Air War College, School of Advanced Air and Space Studies, 2006) 38. ²⁹ Vego, "Operational Deception in the Information Age," 62.

³⁰ Captain Michael Fitzpatrick USN (Professor, Naval War College), in discussion with the author, 20 April 2012.

³¹ Gerwehr, *Unweaving the Web: Deception and Adaptation in Future Urban Operations*, xi.

³⁴ Tommy Franks, *American Soldier* (New York: Harper Collins): 429, 434-436.

³⁵ Crowell, "War in the Information Age: A Primer for Cyberspace Operations in 21st Century Warfare", 7.

³⁶ SPAWAR, "5.6 Overview: A Lens for N65236-R-10-0026 Engineering and Technical Services Support." SPARWAR accessed 12 April 2012.

³⁷ Michael I. Handel, War, Strategy and Intelligence (Totowa, NI: Frank Cass & Co Ltd. 1989), 394.

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